

Science under siege- comment on Kearney article

Faith, vested interests and the scientific method: a critique of Kearney

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Kearney (2012) charges the NSW marine science community with advocacy in its stance towards the marine parks issue. He infers that “the integrity implied in honest enquiry and accurate reporting” is absent which is as unsubstantiated in his article as it is insulting to the NSW marine scientific community. He states ambiguously that “Australian universities may have lost their mantra as Australia’s conscience” which surely requires clarification.

Ironically, Kearney is guilty throughout the article of the charges that he directs to NSW marine scientists- his only citations are to Kearney himself (opinion paper) and Hilborn’s opinion article on sustainable fishing, with no attempt to cite primary research studies, of which there are many. His rhetoric re advocacy and science is heavily borrowed from Hilborn (2007) which at least provides evidence in support of its claims. Here I discuss the fallacy of Kearney’s approach and suggest a constructive way forward that acknowledges the legitimacy of sustainable fishing and pleas for the collaboration of peak fishing research bodies in the State

Kearney rejects the value of overwhelming international evidence in favour of marine protected areas as conservers of biodiversity and beneficial to fishes and fisheries (e.g. Molloy et al 2009 and references therein), and claims they are worthless in the face of larger anthropogenic stresses on fish stocks, including nutrient runoff for adjacent coasts. He criticises the NSW AMSA consensus statement in MPAs as heavily biased against overfishing whereas that statement emphasises the broad gamut of stresses impinging on coastal marine communities. For instance it highlights that “the estuarine and coastal environments of New South Wales are at risk from a range of human activities such as: alteration of catchments – resulting in changes to the quality and quantity of water flowing to the sea, disposal of sewage and other wastes, commercial and recreational fishing, coastal development, port construction, shipping and recreational boating, activities leading to the introduction of exotic marine species, and activities causing human-induced climate change”.

He notes that two of the basic tenets of good science are precision and accuracy, however ecological demonstrations of the effectiveness of marine parks need to go far further. They need to demonstrate effects (through rigorous experimental design, adequate replication) in the face of extreme natural variation and if possible include “before” data. Have such difficult conditions been met in any Australian studies to date? In fact they have to various degrees, for instance Pillans et al. (2005) and Barrett et al. (2007).

Key conservation questions remain: Do we need to protect the environment from overfishing? And are small spatial closures (MPAs) appropriate? Local tests of hypotheses are indeed required. Is overfishing more often an economic issue rather than an environmental one (Hilborn 2007)? NSW estuaries are a nexus of high fishing pressure (both recreational and commercial), pollution and other negative human impacts and yet are highly biodiverse (Sydney Harbour, for instance, supports over 500 fish species, over twice that of all New Zealand waters, (Booth 2010). Given this, are small spatial closures of value (NSW sanctuary zones occupy less than 7% of coastal waters and individual zones are sometimes less than a hectare in area!). Also, can NSW MPAs influence non-exploitative external impacts such as pollution? In fact, the declaration of a marine park does influence decisions to build coastal infrastructure, including sewage outlets, and does form a focus in campaigns for improving coastal water quality.

Fishing interest groups are well- (some may say over-) represented on MPA advisory committees in this state, and sanctuary zone boundaries are unfortunately in part determined to minimise impacts to favourite fishing spots (rightly or wrongly) rather than placed to maximise conservation benefits.

Improved rigour of research into local effectiveness of MPAs should be paralleled with similar studies of the 28 recreational fishing havens in NSW coastal lakes/estuaries- there is no published evidence at all of their effectiveness/effects, despite the great support they enjoy from the rec fishers. This demonstrates a sad truth of human nature- fishing groups and Kearney are uncritical supporters of situations that we directly benefit from and debunk similar scenarios perceived not to benefit (both rec fishing havens and no-take zones in MPAs are small spatial fishing closures). Also, since all NSW commercial fisheries have undergone an EIS process, an EIS should surely be completed for recreational fishing, especially given that the recreational catch of key species such as mulloway, bream and flathead exceed commercial catches. The recent Parliamentary Inquiry into Rec Fishing in NSW highlighted the lack of sound data on the dynamics of recreational fishing in NSW and Australia, with the only large scale survey of rec fish catch done in 2001!!

The truth of the matter is that potential benefits of marine sanctuaries compared with traditional fisheries management are likely to be greater for multi-species fisheries or for more sedentary stocks, or where fishing has broader ecological impacts, e.g., trawling. Marine sanctuaries may impose costs through displaced fishing effort and short-term reductions in catches, although the empirical evidence of these effects is scant (Babcock pers comm.).

As a constructive way forward, Bob Kearney may wish to consider lobbying to his fishing club allies to support rigorous studies that test simultaneous effects of fishing, nutrient loads etc on fish populations, performed by well- published experimental marine ecologists. For instance, while mullet are being restocked into NSW estuaries (largely funded by rec fishing bodies) it is surely relevant to ask- why have they declined, is it overfishing, and if so what can be

done to prevent this? Are small no-take areas helpful for this type of species? Maybe a large-scale “effects of fishing” experiment like that done on the GBR needs to be attempted.

Although “the government” is an obvious target for funding, the real research wealth in NSW is held by organisations such as ACorF (Rec fishing trusts) that need to “step up to the plate” and support suitable applications. More empty rhetoric will be most unhelpful!

References

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